A Second Nearctic Species of Protura, Acerentulus barberi, New Species.

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Since the discovery in 1907 of the very interesting primitive insects, the Protura, by the Italian zoologist and entomologist, F. Silvestri, only a single species has been reported, as far as can be learned, from the Nearctic Region. This species was described in 1909 by Silvestri, from New York, as *Eosentomon wheeleri*. Aside from this single record by Silvestri, the presence of Proturans in the Nearctic Region has been only a matter of conjecture until quite recently, when their occurrence in the vicinity of Washington became established.

Some years ago Dr. A. C. Baker, of the Bureau of Entomology, collected three minute arthropods at East Falls Church, Virginia, which he determined as being Proturans. The matter was not given any special attention at the time, and a specific determination was not made. Also no record was published of this discovery. Since then, apparently these primitive insects have been overlooked in the vicinity of Washington until the winter of 1920-21. Their occurrence here was made definitely known by the finding by H. S. Barber of a single living specimen in humus that had been brought to the National Museum from Plummer's Island, Maryland, by R. C. Shannon some weeks previously. Soon after the discovery of the first specimen two more were found under stones near the mouth of Dead Run, Virginia (opposite Plummer's Island) by H. S. Barber and W. M. Mann, and since then specimens have been taken in some numbers in decaying leaves, by the writer, at Takoma Park, Maryland.

This important discovery of representatives of the order Protura in this vicinity has been reported to the Entomological Society of Washington in the form of a note by Mr. Barber at the March 3rd meeting, and Mr. Barber has suggested that the writer make a specific determination of the Proturan. This has been done, the species proving to be new. It is here named *Acerentulus barberi*, new species, in honor of Mr. Barber.

An examination of the specimens of this species shows it to be quite different from *Eosentomon wheeleri* Silvestri. Silvestri's species belongs to the family Eosentomidae, which family is characterized by the presence of a tracheal system and by having all the vestigial appendages of the abdomen two-segmented. The species here described belongs to the family Acerentomidae, which family is characterized by having no tracheal system and by having the second and third pairs of vestigial appendages of the abdomen much more reduced than the first pair and only one-segmented. The formal description of the species follows:

Acerentulus barberi, new species.

♀.—Color in life a uniform yellow, which gives strong reflections when in the direct sunlight. Head long, broadest slightly in front of the posterior margin; labrum not produced into a process; pseudoculi inconspicuous.

Prothorax very short, about twice as broad as long, and slightly broader than the head, provided above with a transverse row of four setae, the outer being slightly the shortest. Mesothorax broader than long and about twice as long as prothorax, sides convex, its longest lateral seta equal to about one-half its width; metathorax longer and broader than prothorax and broader than long, sides slightly convex and somewhat divergent, longest lateral seta equal to one-half the width of thoracic segment itself.

Abdomen of medium length, segments increasing in width from I to III, then decreasing gradually to VIII; VII twice as broad as long and with sides almost parallel, but seen to converge slightly toward the rear; VIII similar to VII in shape, but much smaller, with a band near its anterior margin marked with microscopic longitudinal striations; segments IX, X and XI very short and ring-like; XII longer and broadly rounded on its free margin. During life the last four segments of the abdomen are held much of the time almost completely telescoped into VIII. Tergal apodemes present on first eight abdominal segments, when viewed from above, seen to be only very slightly curved and laterally branched. Dorsal setae of abdomen moderate, the longest ones on segments II and III being scarcely equal to one-half the widths of these segments. Vestigial appendages of first abdominal segment conspicuous, about as broad as tibia III, first segment fully twice as long as broad and cylindrical, last segment a truncated cone, about as long as broad at the base; vestigial appendages II and III subequal, being minute and cone-shaped.

Legs moderate; first pair almost twice as long as the subequal last two pairs. Claw of leg I very long, being about half as long as the tarsus, straight for most of its length, but hooked toward the end.

Length with abdomen about normal, 1.05 mm.; width at the region of the third abdominal segment, 0.22 mm.

Type locality.—Takoma Park, Maryland. *Type.*—Cat. No. 24,162, U. S. N. M.

Described from the type specimen only, which is a female, collected by the writer, Feb. 14, 1921, at Takoma Park, Maryland, in decaying leaves. This female was taken from a small pocket on the side of a hill only a few rods from my home. The specimen is mounted in balsam with the legs extended and is in fine condition. Because of the present lack of the proper analysis of specific characters in the Protura, it appears desirable to have included in this description only a single individual. After a more complete study has been made autotypes can be designated.

The Curious Mating Habit of Megarhyssa atrata (Fab.) Hymen.: Ichneumonoidea).

The discovery of the curious mating habit of *Megarhyssa atrata* throws some light on the reason for the previous emergence of the males. Very little seems to have been recorded concerning the mating habits of the Ichneumonoids. It is the rule among these insects that the males emerge before the females, especially those parasitic on wood-boring species. In this respect *Megarhyssa* is a striking example.

During the early season before the females of *Megarhyssa* have appeared in numbers, groups of males may be observed congregating at a certain point on a dead tree that is also a host for *Tremex columba* (Linnaeus).

On May 9, 1921, at Harrisburg, Pa., the writer visited a dead standing beech, which had been the host for *Tremex columba* for several years, and in which two and possibly three species of *Megarhyssa* were found ovipositing during preceding summers. On this date several groups of from six to ten males of *Megarhyssa* were found. A closer examination showed that in each group one male had the whole of his abdomen inserted into the tree, through a hole either chewed through the surface by the emerging female, or from the outside by the male. This hole was only large enough to admit the abdomen of the male, although the other males present were attempting to insert their abdomens.

The tree was then cut into at this point, and the female of *Megarhyssa atrata* was found mating with this male. The blow from the axe disturbed the pair and separated them before definite observations on the process could be made; but it was apparent that the females of *Megarhyssa* are fertilized before they emerge. The males probably are attracted by scent, and congregate at the point from which she will emerge.

S. A. Rohwer states* that *Megarhyssa atrata* (Fab.) had not been definitely associated with its host. It was found in this tree as a parasite of *Tremex columba* (L.), as are all but one of the species of *Megarhyssa*.—A. B. Champlain, Pennsylvania Bureau of Plant Industry, Harrisburg, Pa.

* Proc. U. S. Nat. Museum, Vol. 57, No. 2317, p. 429. 1920.